CLAIMS

1.   (Original) In a passive optical network (PON) a method for transmitting packets by an optical network unit (ONU) comprising the steps of:

     a. receiving a grant having a grant length from an optical line terminal (OLT) of the PON; and

     b. based on said grant, calculating an ONU packet egress order that eliminates packet fragmentation,

2.   (Original) The method of claim 1, wherein said step of calculating is preceded by a step of handling out of band information, and includes handling a sub-queue of a given priority.

3.   (Original) The method of claim 2, wherein said handling includes checking said sub-queue for ungranted packets, and wherein said step of calculating includes performing a three stage test on each of said ungranted packets, each of said stage tests involving a stage variable.

4.   (Original) The method of claim 3, wherein said stage variable is selected from the group consisting of reported bytes below threshold, reported total bytes, and total bytes, and wherein said performing of a stage test involving a stage variable includes comparing a value of said stage variable to zero.

5.   (Original) The method of claim 4, wherein said ungranted packet is marked as granted, if the result of said comparison is that said value of said stage variable is greater than zero.

6.   (Original) The method of claim 1, wherein said grant is a flexible grant set by said OLT based on information received from the ONU.

7.   (Previously Presented) The method of claim 6, wherein said information includes a combination of values of bytes below threshold and total bytes.

8.   (Original) The method of claim 7, wherein said threshold is adaptive.

9.   (Original) The method of claim 7, wherein said values of bytes below threshold and total bytes are accumulated from highest to lowest priority.

10.   (Previously Presented) In a passive optical network (PON), a method for eliminating packet fragmentation comprising the steps of:

        a. providing an optical line terminal (OLT) connected to a plurality of optical network units (ONUs), each of said ONUs transmitting packets arranged in sub-queues having a total byte length, said packets transmitted in response to a grant received from said OLT, said grant having a grant length; and

        b. matching said total byte length with said grant length, wherein said step of matching includes, by each said ONU, hiding from said OLT an update in a queue status, whereby the fragmentation loss is eliminated.

11.   (Canceled)

12.   (Previously Presented) The method of claim 10, wherein said hiding includes freezing a transmission order of queues.

13.   (Previously Presented) The method of claim 10, wherein said step of matching further includes checking, from highest to lowest priority each of said sub-queues, identifying in each said sub-queue ungranted packets with respective ungranted packet lengths, and marking each said ungranted packet as about to be transmitted.

14.   (Previously Presented) The method of claim 13, wherein said marking includes comparing to zero a stage variable selected from the group of reported bytes below threshold, reported total bytes, and total bytes, and marking an ungranted packet as granted if said stage variable is greater than zero.